

## CLAIMS

1. A layer sequence or structure comprising a sequence of layers disposed one on another with
  - a first highly doped  $n_a$ -GaAs layer (3);
  - a graded layer (5) of AlGaAs on the firstly highly doped layer (3) whereby the aluminum concentration of this layer diminishes, starting from the boundary surface with the first highly doped layer, in the direction of the opposite boundary surface of the AlGaAs layer (5); and
  - a second highly doped  $n^+$ -layer (7), characterized in that on at least one boundary layer of the AlGaAs layer (5) an undoped intermediate layer (4,6) juxtaposed with the respective highly doped layer (3,7) is provided.
2. A layer sequence or structure in accordance with the preceding claim, characterized in that the undoped intermediate layer is composed of GaAs (4,6).
3. A layer sequence or structure in accordance with one of the preceding claims characterized in that GaAs is the material for the highly doped  $n^+$ -layer (7).

4. The layer sequence according to one of the preceding claims characterized in that silicon or tellurium is the doping substance.

5. The layer sequence or structure according to one of the preceding claims characterized in that the layer sequence e (3, 4, 5, 6, 7) is arranged on further layers (1, 2).

6. The layer sequence or structure according to one of the preceding claims characterized in that the layer sequence (3, 4, 5, 6, 7) is disposed on a  $n^-$ -GaAs layer (2).

7. The layer sequence of the preceding claim, characterized in that the  $n^-$ -GaAs layer (2) is disposed on a highly doped  $n^+$ -layer (1), especially of GaAs.

8. The layer sequence or structure according to one of the preceding claims, characterized in that the first highly doped  $n_a$ -GaAs layer (3) and/or the second highly doped  $n^+$ -layer (7) are doped with up to  $10^{18} \text{ cm}^{-3}$  silicon.

9. A method of making a layer sequence or structure with the steps:

a first highly doped GaAs layer (3, 7) is disposed on a substrate,

on the first highly doped GaAs layer (3,7) an underdoped GaAs layer (4,6) is arranged and epitaxied at an appropriate temperature,

on the underdoped GaAs layer (4, 6) a graded AlGaAs layer (5) is disposed.

10. A method according to the preceding claim characterized in that on at least one further boundary surface of the AlGaAs (5) a second undoped GaAs layer (4, 6) is arranged and epitaxied at a suitable temperature.

11. A method according to one of the preceding claims 9 or 10, characterized in that a further highly doped GaAs layer (3, 7) is disposed on the second undoped GaAs layer (4, 6).

12. A layer sequence or structure comprising a series of layers disposed one on another with

- a first highly doped layer,
- a graded layer arranged on the first highly doped layer,
- a second highly doped layer,

characterized in that on at least one boundary surface of the graded layer an undoped intermediate layer is arranged and juxtaposed with one of the highly doped layers.

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